

Transmural Migration of Surgical Sponge Evacuated by Defecation: Mimicking an Intraperitoneal Gossypiboma

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The spontaneous defecation of the surgical retained sponge is very rare. Here, we report a case of migrating surgical sponge that was retained in the colon and it was evacuated by defecation.

A retained surgical sponge is easily diagnosed on plain abdominal radiographs; this is due to the presence of radiopaque markers in the sponge. However, it may be difficult to determine the location of a retained surgical sponge if the sponge penetrates and migrates into the small bowel and urinary bladder (1). We report a rare case of a retained surgical sponge located within the ascending colon that resulted in partial intestinal obstruction and spontaneous expulsion.

CASE REPORT

A 29-year-old woman was admitted to our hospital with a history of a cesarean section three months previously at a local hospital. The patient reported colicky abdominal pain in the right paraumbilical area as well as in the right upper quadrant for three weeks; in addition she had vomiting and constipation. On the physical examination, her abdomen was tender at the right upper quadrant. A soft tissue mass approximately 4–5 cm in diameter was palpated in the right upper abdomen. The bowel sounds were hyperactive. The results of a rectal examination were unremarkable. The laboratory investigation yielded the following results: a WBC count of 10,500 / μ L, a hemoglobin of 7.4 g/dl and a positive VDRL; other routine laboratory tests were normal.

Plain abdominal radiographs revealed a curved metallic foreign body and tiny air bubbles in the abdomen (Fig. 1A). Computed tomography of the abdomen was performed using a helical scanner (Prospect; General Electric, Yokohama, Japan). Intravenous contrast was administered using a 70 second delay infusion at 3 cc/sec. The CT scan revealed a thick, walled lesion on the right side of the abdomen that contained a metallic foreign body and tiny air bubbles (Fig. 1B). The first impression was that this represented a retained surgical sponge (called gossypiboma) in the peritoneal cavity that resulted in an intraabdominal abscess.

After two days, laparoscopic surgery was performed. However, there was no lesion in the intraperitoneal cavity at the right abdomen, and there was no bowel perforation or fistula noted. A portable plain abdominal radiograph was performed during surgery to locate the sponge. A plain abdominal radiograph showed a metallic lesion in the left lower quadrant area (Fig. 1C). Therefore, the surgeon ended the procedure after saline

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irrigation and drainage. On the second day after surgery, the surgical sponge was spontaneously expelled (Fig. 1D); it measured 5 × 6 cm in size. After defecation, there was no metallic lesion seen in the abdominal or pelvic cavity on abdominal radiographs (Fig. 1E). The patient was discharged seven days later in stable condition. A small bowel series was performed one month after surgery.

There was no sign of an abnormal fistulous tract (not shown).

DISCUSSION

The surgical error of leaving a sponge in the body cavity after a procedure remains a problem. The occurrence of a

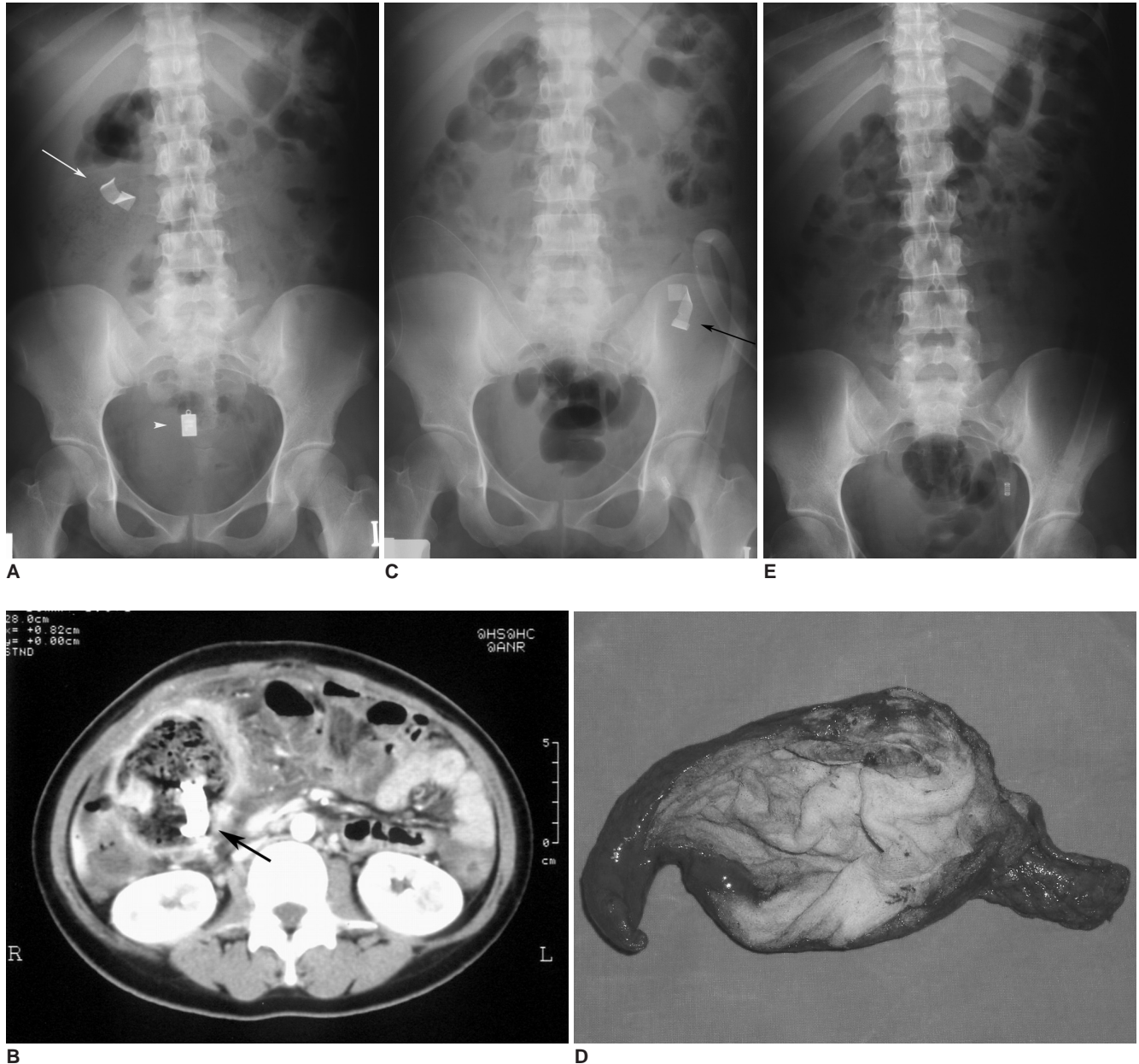


Fig. 1. Intracolonic surgical sponge and evacuation in 29-year-old woman.

A. Supine plain abdominal radiograph shows the curved metallic foreign body (arrow) and tiny air bubbles in the right middle abdomen. Small "F" shaped metallic density (arrowhead) in pelvic cavity is an artifact from underwear.

B. Axial CT scan reveals a thick and enhanced walled mass containing a metallic foreign body and tiny air bubbles at the right mid abdomen.

C. A plain abdominal radiograph during surgery shows the metallic lesion (arrow) in the left lower quadrant area.

D. The photograph shows a spontaneously expelled surgical sponge on the second day after surgery. Soft tissues attached on both sides were mucus and fecal materials, accompanied by foreign body reaction.

E. A plain abdominal radiograph, on the second day after surgery, does not show a metallic lesion in the abdominal and pelvic cavity.

retained surgical sponge occurs with a frequency of one per 100–3,000 operations (2). A retained surgical sponge can also be referred to as a gossypiboma, which is derived from gossypium (Latin, cotton) and boma (Swahili, place of concealment) (3). Clinically, a retained sponge may be asymptomatic or it may result in a granulomatous reaction with abscess formation, intestinal obstruction or fistula formation. Pathologically, two types of foreign body reactions can occur (4). One is an aseptic fibrinous response that creates adhesions and encapsulation; this results in the formation of a foreign body granuloma. The second response is exudative in nature, and leads to abscess formation with or without secondary bacterial invasion. Occasionally, a retained sponge may be indistinguishable from an intraabdominal abscess. A retained surgical sponge has radiopaque markers that are readily visible on plain abdominal radiographs. CT images can provide comprehensive details about the lesion in most cases; air bubbles and calcification of the cavity wall, as well as contrast enhancement of the rim are commonly visualized. It has been suggested that air bubbles identified inside of the retained surgical sponge are caused by: perforation or erosion in the intestine, inflammatory reaction or abscess formation, or air trapped between the synthetic fibers of the surgical sponge. Air bubbles have been reported inside of retained surgical sponges without intestinal migration; thus the most likely hypothesis is that air bubbles are seen after being trapped among synthetic fibers (5).

Migration of a retained surgical sponge into the bowel is rare compared to abscess formation. A retained surgical sponge can penetrate the intestine and bladder, and may result or cause malabsorption, intestinal obstruction, gastrointestinal hemorrhage, and transurethral protrusion (1, 6, 7). Penetration into the intestines is more frequent than into the ileum or the colon. However, this process may occur in any part of the intestinal tract, and occurs as a result of the inflammation in the intestinal wall that evolves to necrosis (6). Once a surgical sponge has migrated into the intestinal lumen, it is advanced further by the peristaltic activity of the bowel (6, 7). The open intestinal loop can be closed after complete migration of a surgical sponge (1). In cases of bowel penetration, the sponge usually stops in the terminal ileum, resulting in

intestinal obstruction (6). However, in our case, the migrating surgical sponge was spontaneously expelled during defecation. We have been unable to find any similar reported case. We cannot explain the course of events leading to the migration of the sponge; in addition we were surprised not to be able to identify a fistulous tract. However, previous cases where a fistulous tract has not been identified have been reported (6). Therefore, we believe that the fistulous tract closed spontaneously after the sponge penetrated the bowel wall.

Although radiologists commonly consider an intraperitoneal location for a retained surgical sponge, rare cases of an intraluminal location have been confirmed inside of the small bowel or colon as in this case. Therefore, radiologists should be alert to the possibility of an intraluminal location, although it is rare, to prevent unnecessary and invasive surgery.

In conclusion, this paper presents a rare case of a migrating surgical sponge that was retained in the colon and evacuated by defecation. This case was a good example that illustrated that a change in location of a gossypiboma, on follow up radiographs, suggests the possibility of sponge migration into the hollow viscus.

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